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THE METHODS FOR NANOCERIA'S COATING IN ORDER TO IMPROVE ITS SOLUBILITY

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Abstract: CeO₂ (nanoceria) is the most important rare-earth oxide and potent free radical scavenger, due to coexistence of Ce³⁺ and Ce⁴⁺ ions and formation of oxygen vacancies on its surface. These nanoparticles can collect reactive oxygen species (ROS) and protect healthy cells from oxidative stress, but they also show cytotoxicity. This dual behavior of nanoceria presents a great pharmacological potential, such as improving the treatment of cancers, drug delivery and catalysis. We established the method for synthesizing these nanoparticles, which was particularly challenging because of their low solubility. To facilitate nanoparticle's entry into the cells, we further coated these nanoparticles by addition of carbohydrate (glucose, levan or pullulan) in the reaction mixture during and after the synthesis of nanoceria. We have investigated which of two applied methods of synthesis gave more soluble ceria nanoparticles.

Ključne reči: nanoceria, nanoparticle, synthesis, glucose, levan, pullulan

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